From: Franklin Shaffer [SMTP:Franklin.Shaffer@netl.doe.gov]
Sent: Tuesday, March 14, 2000 4:03 PM
To: Daniel.Skelly@eia.doe.gov
Subject: NEMS

Dear Mr. Skelly,

Thanks for the excellent and thorough information about the NEMS code, and for responding so quickly.

The approach we are thinking about is to get NEMS running on a stand-alone PC. Ideally, in the beginning we wouldn't even have to do any compiling – perhaps we can just run the executable files? Then we could tweak input parameters (hopefully they're in text files) and get some sensitivity analyses done. This way we could get some results while we're learning how to compile and link NEMS.

We are not thinking about doing any code development. We just want to get more insight into advanced fossil fuel technologies (e.g., sequestration or hybrid turbine-fuel cells) by doing slight modifications to runs you have done.

I realize learning to use NEMS is a long-term project.

A few questions:

- Is it possible to run the code with a stand-alone PC just using Compaq Visual Fortran 6.1?
- Is it possible to run the code without the Kertron optimizer?
- It wasn't clear to me if the other tools like the Revision Control System and the MKS Toolkit were only for your networking system, or are they required for a stand-alone application too?

I am looking into the two contractor contacts you gave me. We already have SAIC as an on-site contractor here, so the SAIC contact may be convenient for us. Hopefully we can rely on one of these contractors to get us up and running then we won't have to pester you (EIA) so often.

Thanks again,
Frank Shaffer

USDOE National Energy Technology Laboratory
Office of Systems and Policy Analysis
412-386-5964
Franklin.Shaffer@netl.doe.gov
www.netl.doe.gov

"Skelly, Daniel" <Daniel.Skelly@eia.doe.gov
"Franklin Shaffer" <Franklin.Shaffer@netl.doe.gov
3/14/00 4:44PM
Subject: NEMS

A stand-alone PC is capable of running NEMS, but NEMS will tax the machine so that nothing else can be done on it. Also, running the entire NEMS requires a memory space in excess of that availble in Windows 95. Therefore, using Windows NT with a dual-processor machine is ideal.

Portions of NEMS can be run without the Ketron Optimizer, OML. OML is required for the electricity, coal, and refinery modules. The linker that comes with Digital Fortran can be used to produce an executable with only the parts of NEMS you want to execute. It is also needed to combine the OML libraries with the rest of NEMS if you are including an OML-dependent model.

NEMS contains over a hundred input files of varying types. The majority are text data files with internal comments describing the data. While you can make changes to assumptions about technologies programmed into the model, adding new technologies often requires model development.

RCS and MKS Toolkit would only be required if you wanted to use our development platform for running NEMS. They are not necessary for running NEMS from our archive. The archive configuration will allow you to make changes to data files, vary file names, and so on. The challenge is to keep track of your changes and what files you're using. By the way, running NEMS to solve for specific carbon-goals (like cases in our Kyoto Study) is more difficult and requires some special versions of various model pieces. We make such runs using unix scripts that aren't part of the archive.